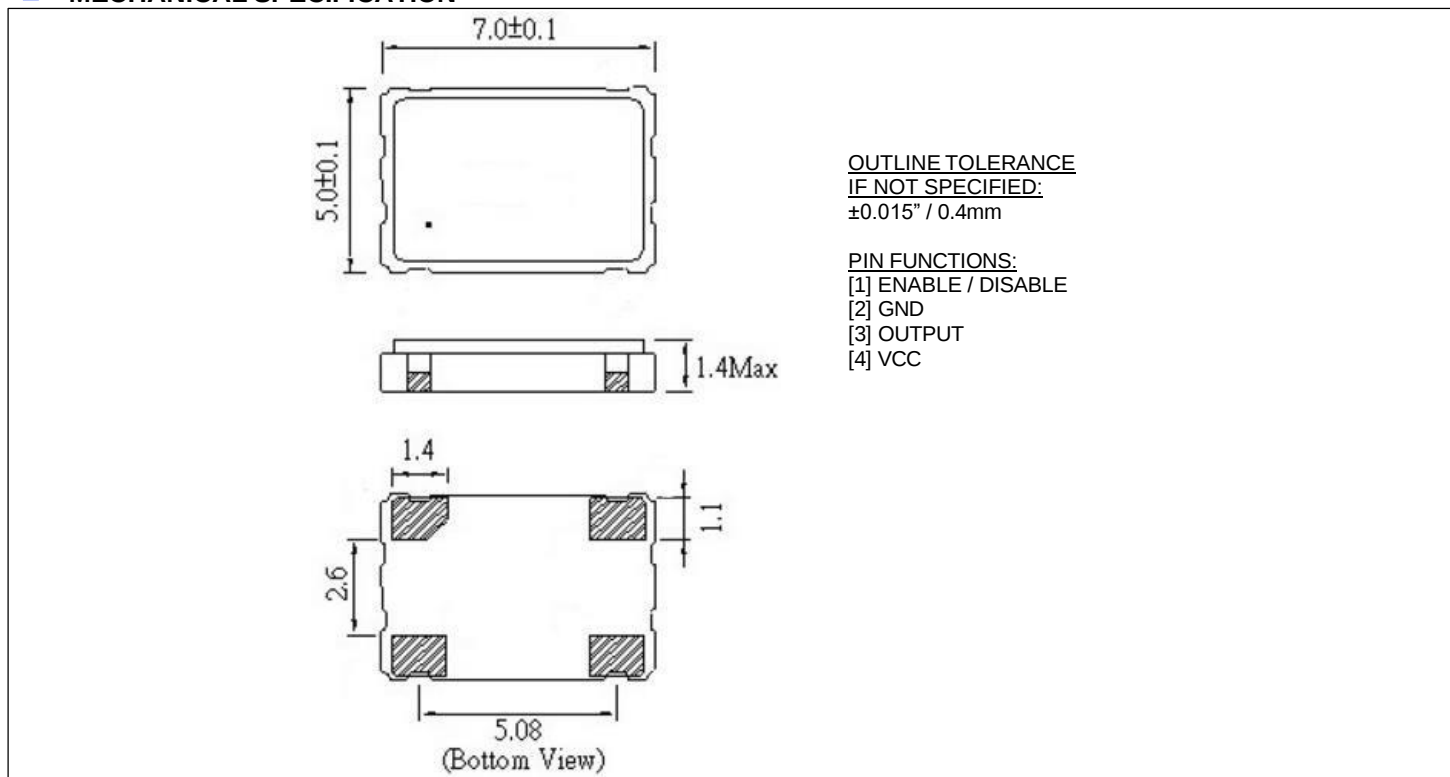


■ **ELECTRICAL SPECIFICATION**

| PARAMETER                   |                  | VALUE                                                                                         |
|-----------------------------|------------------|-----------------------------------------------------------------------------------------------|
| Nominal Frequency           |                  | 32.768 kHz                                                                                    |
| Operating Temperature Range |                  | -20°C ~ +70°C Standard<br>-40°C ~ +85°C Extended                                              |
| Frequency Stability *       |                  | ±20 ppm, ±25 ppm, ±30 ppm, ±50 ppm                                                            |
| Storage Temperature Range   |                  | -55°C to +125°C                                                                               |
| Supply Voltage (Vcc)        |                  | 1.8 V, 3.3 V, 5.0 V                                                                           |
| Supply Current              |                  | 200uA Max. (10uA is available)                                                                |
| Output<br>CMOS              | Symmetry         | 40% to 60% at 50% Vdd (45% to 55% Available)                                                  |
|                             | Rise / Fall Time | 30nS Max.                                                                                     |
|                             | Logic "0" Level  | Vcc x 0.1 V max                                                                               |
|                             | Logic "1" Level  | Vcc x 0.9 V min                                                                               |
|                             | Load             | 15 pF max                                                                                     |
| Enable / Disable Function   |                  | Pin 1: High or Open >> Output enabled Pin 3<br>Pin 1: Low >> Output disabled (High impedance) |
| Start-up Time               |                  | 10mS Max.                                                                                     |

\* Inclusive of 25°C tolerance, operating temperature range, voltage or load changes, aging, shock and vibration, consult factory for tighter stability options.

■ **MECHANICAL SPECIFICATION**



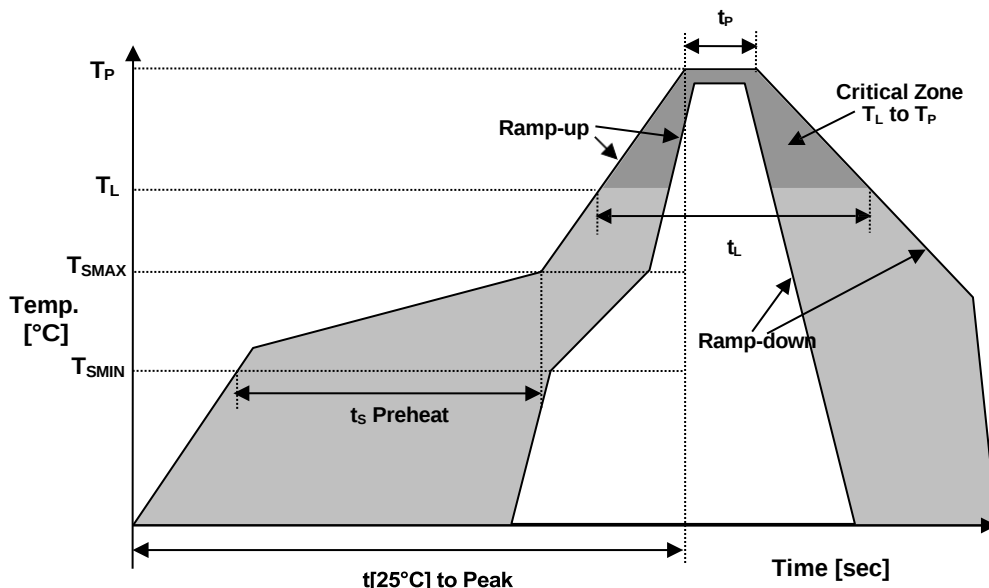
■ **PART NUMBERING SYSTEM**

| TYPE                | SERIES | - | FREQUENCY<br>(MHz) | - | SUPPLY<br>VOLTAGE<br>(Vcc)                                    | - | STABILITY<br>(ppm)                                       | - | TEMPERATURE<br>RANGE (°C)                  | - | SYMMETRY<br>(Duty Cycle)         | - | TAPE<br>&<br>REEL |
|---------------------|--------|---|--------------------|---|---------------------------------------------------------------|---|----------------------------------------------------------|---|--------------------------------------------|---|----------------------------------|---|-------------------|
| Clock<br>Oscillator | 7050   | - | 0.032768           | - | 1.8: Vcc=1.8<br>2.5: Vcc=2.5<br>3.3: Vcc=3.3<br>5.0: Vcc= 5.0 | - | 20: ±20 ppm<br>25: ±25 ppm<br>30: ±30 ppm<br>50: ±50 ppm | - | blank: -20°C to +70°C<br>X: -40°C to +85°C | - | blank: 40 to 60%<br>T: 45 to 55% | - | TR                |

**EXAMPLE: CO7050-0.032768-2.5-20-T-TR**

Surface Mount CO7050, 7.0 x 5.0 mm, 32.768 kHz, 2.5 VDC Supply Voltage, ±20 ppm Overall Stability, from -20°C to +70°C, Symmetry 45% to 55%, Tape and Reel packaging.

■ **REFLOW PROFILE**



| Reflow profile                                  |                    |              |
|-------------------------------------------------|--------------------|--------------|
| Temperature Min Preheat                         | T <sub>S</sub> MIN | 150°C        |
| Temperature Max Preheat                         | T <sub>S</sub> MAX | 200°C        |
| Time (T <sub>S</sub> MIN to T <sub>S</sub> MAX) | t <sub>S</sub>     | 60-180 sec.  |
| Temperature                                     | T <sub>L</sub>     | 217°C        |
| Peak Temperature                                | T <sub>P</sub>     | 260°C        |
| Ramp-up rate                                    | R <sub>UP</sub>    | 3°C/sec max. |
| Ramp-down rate                                  | R <sub>DOWN</sub>  | 6°C/sec max. |
| Time within 5°C of Peak Temperature             | t <sub>P</sub>     | 10 sec.      |
| Time t[25°C] to Peak Temperature                | t[25°C] to Peak    | 480 sec.     |
| Time                                            | t <sub>L</sub>     | 60-150 sec.  |

■ **ENVIRONMENTAL**

| PARAMETER                  | VALUE     |
|----------------------------|-----------|
| MOISTURE SENSITIVITY LEVEL | 1         |
| REACH SVHC                 | COMPLIANT |
| RoHS                       | COMPLIANT |
| TERMINATION FINISH         | Au        |



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